SAFE

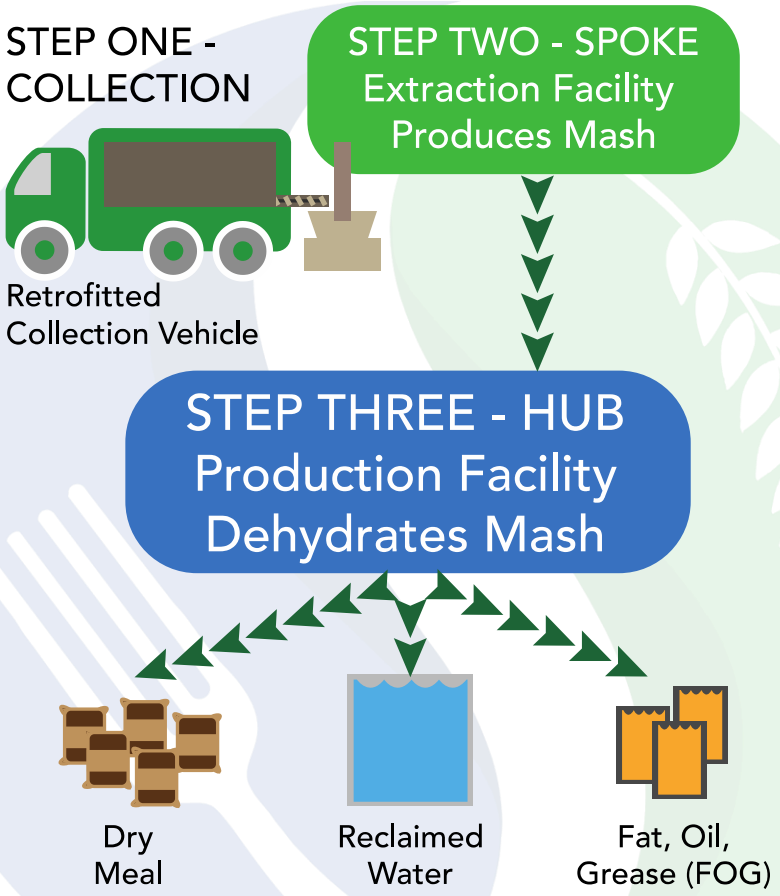
SUSTAINABLE ALTERNATIVE
FEED ENTERPRISES

SAFE New Technology

Patented SAFE Food Scraps Solution System (SOS #1)

The SAFE System Revolutionizes the manner in which food waste is handled and processed.

Our system succeeds by handling food scraps separately from all other components of the waste stream using a hub and spoke model consisting of 3 steps.



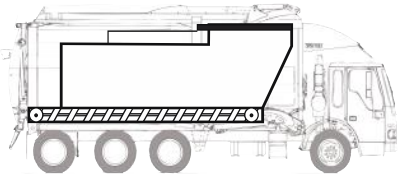
Bay Area "Hub and Spokes"

The SAFE Process

STEP ONE - COLLECTION:

SAFE products are used to facilitate the source separation, collection, and transportation of food scraps.

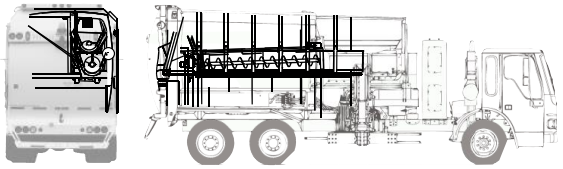
COMMERCIAL - FRONT LOADER



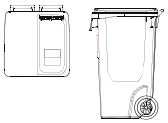
Removable auger insert for front loader body.

Traditional Bins and/or Carts.

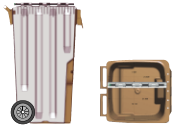
RESIDENTIAL - AUTOMATED



Retrofit auger kit to be inserted into an existing automated side loader body.
Split hopper allows dual-capacity inside body.



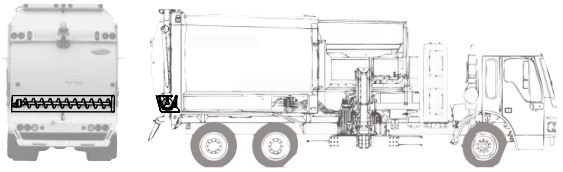
64-Gallon Cart with Insert.



64-Gallon Split Cart.

20 to 96-Gallon Cart.

RESIDENTIAL/COMMERCIAL TAILGATE RETROFIT



Auger retrofit inserted into tailgate.
Allows for dual-use: residential or food waste-only routes.

20 to 96-Gallon Cart.

Covered by U.S. patent number 8,973,491
and one or more pending patent application.

The SAFE Process

STEP TWO - EXTRACTION:

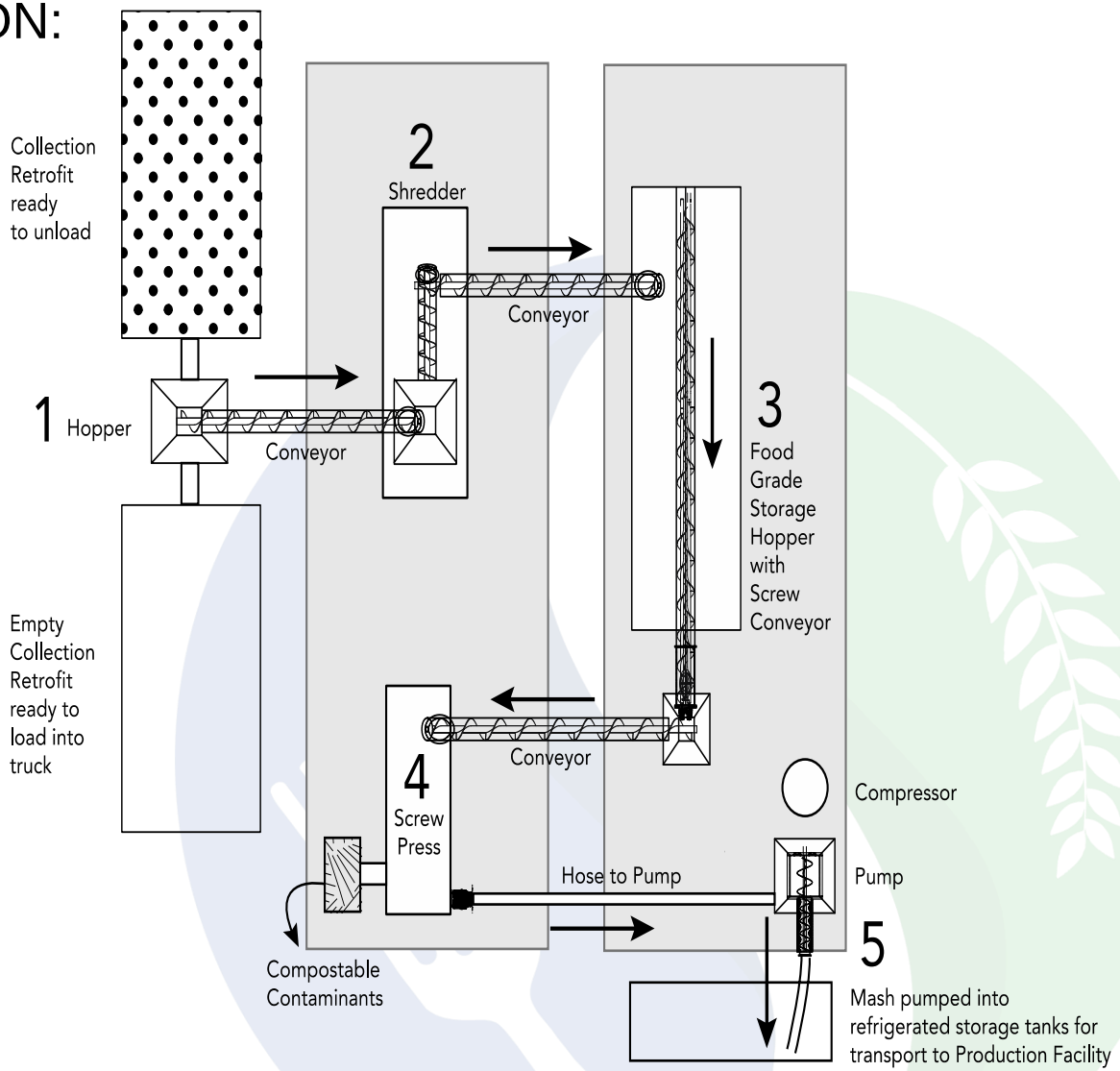
SAFE extraction equipment converts raw food scraps into a mash while expelling non-foods such as paper and plastics. The system is modular and is capable of processing anywhere from a few tons to several hundred tons of mash per day. The location is considered a SAFE spoke.

SAFE extraction equipment removes all waste contaminates including glass.

SAFE extraction equipment creates a uniform mash that is 75%-80% water, sized, and ready for transport to the production facility.

STEP TWO - EXTRACTION:

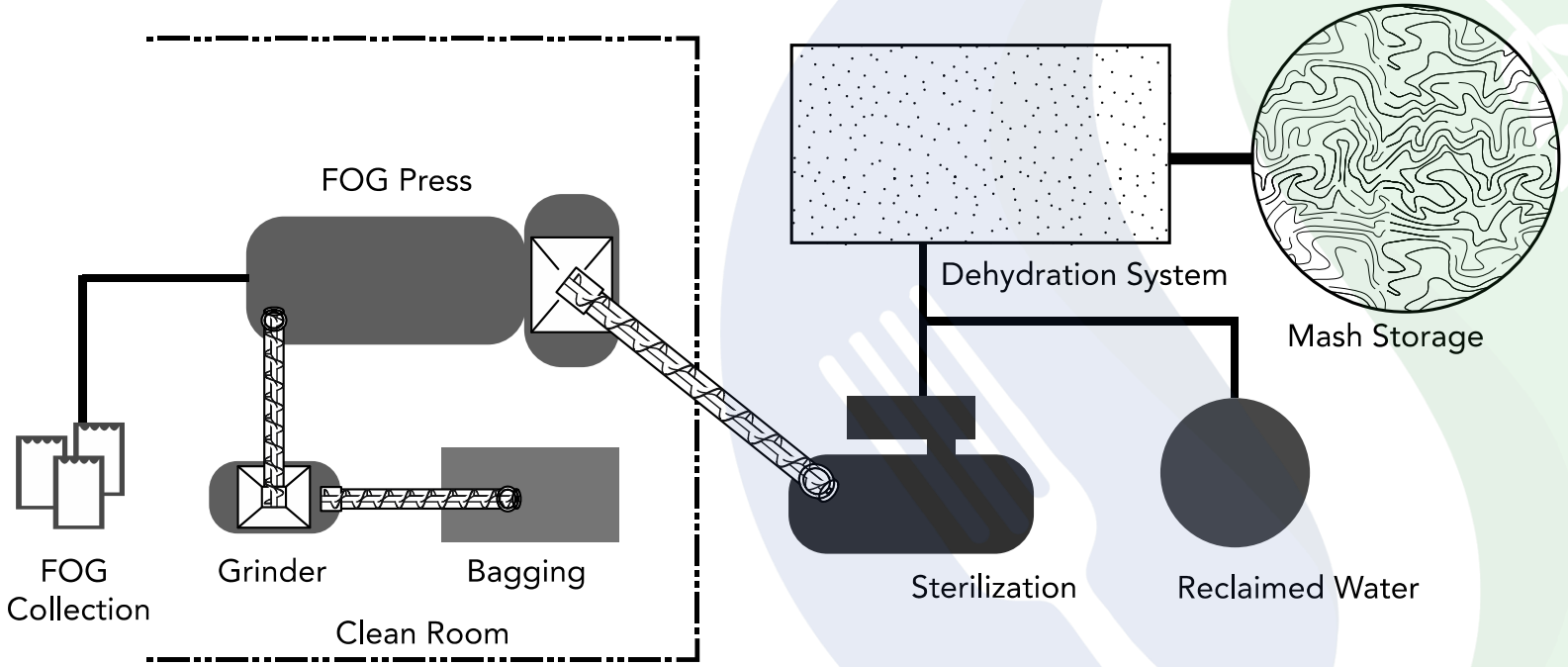
1. Collection Retrofit positioned to empty into Hopper.
2. Material moved by Screw Conveyor to Shredder.
3. Material moved to Screw Press via Food Grade Storage Hopper.
4. Compostable contaminants removed and remaining material reduced to liquid mash via Screw Press.
5. Liquid mash pumped to refrigerated storage tank for transport to Production Facility.



The SAFE Process

STEP THREE - PRODUCTION:

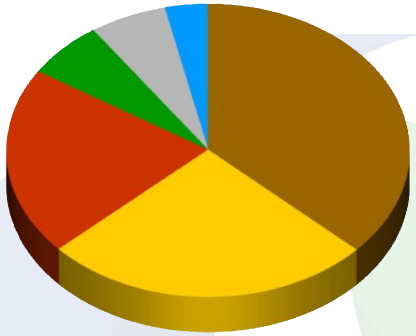
SAFE mash is transferred to a regional production facility, or hub, in sealed tanker trucks. The production facility houses the SAFE drying and processing equipment in a clean environment.



The SAFE Result

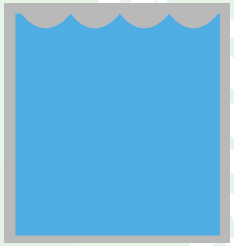
FEED SUPPLEMENT/MEAL:

- 36.9% Carbohydrate
- 26.3% Fat, Oil, Grease
- 20.8% Protein
- 6.3% Fiber
- 6.2% Ash
- 3.5% Minerals



BY-PRODUCTS:

Water: SAFE captures 200 gallons of water per ton of food scraps. *It is currently the only system proven to reclaim clean water from food scraps.*



FOG (Fat, Oil, Grease): 25 gallons of clean FOG are extracted per each ton of mash. Clean FOG is used as a high grade input for bio-fuels production or as a feed supplement. *SAFE's FOG is equivalent to #2 yellow grease.*

Siting Issues:

<u>Preprocessing Operations</u>

- Permitted Solid Waste Facility
- MRF's
- Transfer Stations

<u>Production Facility</u>

- Zoning Requirement
- Manufacturing
- By Right Use

San José Food Scraps Program

- Residential food scrap collection pilot program began in September, 2015. Will run for one year. Prior to pilot, food scraps placed in garbage.
- Two culturally and economically diverse pilot areas, each with approximately 3,000 single-family homes.
- Residents in one pilot area given a 20-gallon cart for food scraps.
- Residents in second pilot area given a split cart with 48-gallons of capacity for garbage and 16-gallons for food scraps. Residents previous garbage cart (usually 32-gallons) was removed.
- Residents in both pilot areas given a kitchen pail.

San José Food Scraps Program

During first month of pilot:

- Participation rate for split cart averaged 67%
- Participation rate for 20-gallon cart averaged 40%
- Average lbs collected per participating household = 11.7/week
- Residual rate between 20-30% per load

San José Food Scraps Program

The SAFE Advantage

- The SAFE system converts food waste into a high value feed commodity that can be marketed globally.
- The SAFE system is zoned as light industrial. The footprint is small, requiring 10,000 square feet for processing.
- The SAFE system keeps food waste collection vehicles in close proximity to the SAFE processing facility.
- The SAFE system provides exclusive "point of differentiation" from traditional composting and anaerobic digestion (AD) technologies.

SAFE

SUSTAINABLE ALTERNATIVE FEED ENTERPRISES

For more information:

www.ForkToFeed.com